GEOGRAPHIC NEWS BULLETINS

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington, D. C.)

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Photograph by Maynard Owen Williams

MISS TUNIS TODAY DROPS HER HAREM SECLUSION, BUT NOT HER VEIL

Near Manouba, the suburb of Tunis for which the street car is headed, stands the palace where the Bey secluded his veiled harem when Tunisian fashions were dictated from Turkey instead of Paris. The veil, which harem dwellers then wore because of modesty, now becomes a black mask to protect the gadabout Tunisienne's face from the strong African sun as she boldly takes her stand on the front platform. Old Turkish fashions for men survive in the fez visible behind her, but a more modern variation is the motorman's headgear—a tasseled skull cap (Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic News Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Entered as second-class matter, Jan. 27, 1922, Post Office, Washington, D. C., under act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of Oct. 3, 1917, authorized Feb. 9, 1922. Copyright, 1939, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

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Italy Claims Assorted French Territories

WHEN Italy's historic House of Deputies disbanded last month, it started a landslide of international tumult with cries of "Tunisia! Corsica! Savoy! Nice!"

The four widely separated places to which they shouted Italy's claim have been under French government for periods ranging from fifty-seven to one hundred and forty-nine years. France, by way of a reply, announced that January schedules of army and navy officials are filled with inspection tours to the areas in question.

The territories for which Italy has voiced a claim have an aggregate area of about 56,000 square miles, and are homes of three and a half million French subjects.

Napoleon Born in Corsica

If Italy should acquire these lands, the resulting change of boundaries might cut France's communications with colonies in east Africa and Indo-China.

Of the four regions mentioned by Italian deputies, by far the largest and richest is Tunisia. Corsica, birthplace of Napoleon Bonaparte, although the third largest Mediterranean island, has an area of only 3,367 square miles. The Italian island of Sardinia lies only seven and a half miles to the south.

Highest in sentimental value to Italians is Savoy, ancient seat of the House of Savoy, the head of which today occupies the throne of Italy. Savoy is France's Alpine province, south of Lake Geneva, the summer resort playground containing Mont Blanc.

Nice, the winter resort city de luxe of a quarter-million inhabitants, almost due south on the Riviera, is the largest French city near the Italian border. In 1388 Nice came under the protection of Savoy, and finally both cast their lots by treaty with France in 1860.

Of all Italy's territorial demands, most strategic is that for possession of Tunisia. Cap Bon, headland on the Tunisian coast of Africa, is only 42 miles from Italian territory—the small fortified island of Pantelleria. Sicily, at the toe of Italy's boot, is 88 miles from the coast of Tunisia. This almost-bottleneck of the Mediterranean, to guard which Great Britain has a base at Malta just beyond, could—if in unfriendly hands—become as threatening a barrier to commerce as any that could be set up at Gibraltar or Suez.

Tunisia Was Granary of Ancient Rome

Tunisia has a strong Italian tinge. The latest census listed only 13,779 more Frenchmen than Italians in a population of two and a half million (not counting the French army). In the 1921 census, Italians were 30,000 ahead. The Italian Government maintains schools in larger Tunisian towns for Italian-speaking pupils. An Italian air service links Tunis, the capital, with Rome. Caravan routes tie Tunisia to the Italian colony of Libia next door.

Tunisia is not classed as a French colony, but it is ruled by a native Bey (governor) under the regency of France. French troops entered the country in 1881 after the ruler could not pay for repairs on the ancient Carthaginian aqueduct system (illustration, inside cover) which then brought clear mountain spring water to Tunis. Today Tunisia is France's second biggest colonial customer.

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Photograph by Maynard Owen Williams

ANCIENT CARTHAGE HAD A LONG-DISTANCE DRINK OF MOUNTAIN SPRING WATER

After Carthage had been conquered by the Romans, the Emperor Hadrian built an 80-mile aqueduct to bring water to the Carthaginian capital on the sea coast. A few lofty stone arches still stand, along a modern highway. The same spring supplies modern Tunis by underground conduit (Bulletin No. 1).

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5,000 Eggs in Two Pill Boxes Bring Mosquito Biography to Artist

THE National Geographic Society last month received a shipment by air mail from Orlando, Florida—5,000 eggs. But nobody counted chickens unhatched. The eggs arrived in two small pill boxes sealed in an envelope, and the postage was six cents. Three weeks later they hatched, and are developing into a fine, healthy brood of mosquitoes.

The strange shipment was just another piece of mail to the headquarters of the National Geographic Society. When the postman rings there, he may deliver among the thousands of letters such parcels as bird skins from Brazil, gold nuggets from Australia, head-hunters' knives from Borneo, sealskin pants from Greenland, natural color film from South Africa, a live armadillo from New Mexico, or hundred-million-year-old dinosaur bones from Wyoming.

Mosquito Tells Own Story under Artist's Microscope

The mosquito eggs were ordered as artist's supplies for Hashime Murayama, staff artist for The Society, who is painting a series of insect studies for a forthcoming issue of the *National Geographic Magazine.*

Already Mr. Murayama has completed paintings of the malaria-carrying mosquito, *Anopheles,* and the yellow fever carrier, *Stegomyia.* He made his own search for these specimens and their eggs, finding them in the neighborhood of the District of Columbia. Trafficking in the eggs of these enemies of man is forbidden, The Society learned, and they could not be ordered from elsewhere. Their presence in the District of Columbia does not foretell an epidemic, however; they carry disease only in regions where it already exists, and do not generate it in healthy areas.

The common house mosquito, *Culex quinquefasciatus,* is so general that there is no ban against transporting it. When Mr. Murayama was ready to start on its portrait, eggs were requested from the Orlando (Florida) laboratory of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture.

From egg to adult, the mosquito is acting out his life drama on the miniature stage of Mr. Murayama's microscope (illustration, next page). With the dissecting microscope, a hand magnifying glass, and a high-power instrument for more detailed work, the artist studies the shape and color of tiny scales on the wing, the many segments in the antennae and their whorls of microscopic hairs, the half-dozen mouth-parts with which the female is equipped for making her notorious bloodsucking "bite," which isn't a bite at all but a puncture.

Shrimplike Water Creature Acquires Power of Flight

Mr. Murayama's paintings begin where the mosquito begins—with an egg-raft. When the pill box egg crates arrived at The Society's headquarters, they contained "rafts" or clumps of from one hundred to four hundred eggs. Each brownish-purple raft was about the size of a grain of wheat. It was made up of row after row of slender microscopic eggs standing on end, like a bunch of cigars glued together.

The artist didn't put all his mosquito eggs in one basket. He put part in a jar of tap water, part in melted snow, and part in distilled water. Then he crumbled some yeast cake in to nourish the insect infants. The batch in melted snow

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As Carthage, the state founded 2,700 years ago by Queen Dido, the region which is now Tunisia grew strong enough to wrestle with ancient Rome in the three Punic Wars, and to send Hannibal's 100,000 men and 40 elephants across the Alps into Italy itself for a 16-year campaign. But the Roman conqueror Scipio dictated the terms of a peace treaty that made Carthage Rome's tributary and granary during the days of Julius Caesar's triumphs.

Tunis, with a quarter of a million people, is the leading city of Tunisia. From this port are shipped the country's rich output of wheat, olive oil, and phosphate rock—three leading exports. Fishermen follow the coastline for coral, sponge, and octopus. Farmers have success with almond and pistachio crops, oranges and shaddocks (a pear-shaped ancestor of the grapefruit). Foresters strip Tunisian cork—as much as several hundred pounds from a single mature oak.

Note: Information about the French territories claimed by Italy is found in "Time's Footprints in Tunisian Sands," *National Geographic Magazine*, March, 1937; "Flights from Arctic to Equator" (Savoy), April, 1932; "Carnival Days on the Riviera" (Nice), October, 1926; "Ancient Carthage in the Light of Modern Excavation," also "Tunisia, Where Sea and Desert Meet" (color insert), April, 1924; and "The Coasts of Corsica," September, 1923.

Bulletin No. 1, January 9, 1939.

Photograph by Maynard Owen Williams

LEARNING HEBREW A B C'S IN "THE LAND OF THE LOTUS-EATERS"

Jews constitute two per cent of Tunisia's population today; they are half as numerous as the French. Many of them live in colonies founded by Jewish refugees in the first century A. D., after Titus sacked Jerusalem. Such a group is that on the island of Djerba, where this synagogue class was photographed. Djerba, off the southeast coast of Tunisia, has been identified as the Land of the Lotus-Eaters described in Homer's *Odyssey*.

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Sulu Archipelago: Domain of Uncle Sam's Only Mohammedan Sultan

FOR thirty-five years Gov. James Fugate advocated government by kindness in the Sulu Archipelago of the Philippines. Among the fierce Moros and savage hill pagans of the Sulu Islands, he governed without a gun—the only American to dare to do without gunpowder's protection. He seemed to lead a charmed life as teacher and governor in one of the most dangerous outposts of civilization under the American flag. Last month the news leaked through that he had been murdered.

Once a stronghold of open piracy and lawlessness, the Sulu Islands have been a problem to the United States since they were acquired from Spain after the Spanish-American War. With a large oriental population, the islands have always seemed less like American territory than like chips off the old block of Asia.

The turban, the fez, the cool glitter of the wavy edge of the kris tucked into a striped silk sash, gold coins buttoning red vests and skin-tight trousers, bare feet, and brown faces are the earmarks of Uncle Sam's Sulu subjects. Their native ruler is a Mohammedan Sultan, the only one holding sway under the Stars and Stripes.

Four Hundred Islands in Sultan's Domain

The Sulu Archipelago consists of about 400 islets, extending from the Philippines southwestward almost to the tip of Borneo. They have been the subject of amused comment and of comic opera as well. But the truth about them is stranger than fiction. Polygamy and slavery flourish under an occasional electric light, child marriage is recorded with a fountain pen, and the Sultan's personal flag sports some stars of the United States emblem beside the sword of Moro piracy.

Many of the islands of the Archipelago are mere coral reefs rising a few yards above the tides. Larger ones are single volcanic peaks sloping gently to a green shoreline skirted with white coral sand. The largest island is Sulu, or Jolo, 333 square miles of green mountain ridges and fertile valleys.

On its northwest coast is the capital "city" of the Archipelago, also named Sulu or Jolo, a quiet town with crumbling Spanish forts and walls surrounding a busy market, a Catholic mission and a Mohammedan mosque, a few government buildings, a waterfront colony of sea gypsies, and the notorious Chinese Pier, which is the commercial center of the islands.

In addition to the Moros, the Sulu Islands harbor shy pagan hillmen living in the mountains. They realize their helplessness in coping with civilization, and therefore avoid it.

Sea Gypsies Are Buried in Their Boats

The tribes responsible for much of the Sulu Islands' evil reputation are the Bajaos; they spend most of their lives at sea, claim to grow dizzy when trying to walk on land, and are buried in their boats. In hand-pegged canoes balanced with outrigger poles and tall bamboo masts, they hoist sails like muslin butterflies, bright with patched-on stripes and triangles of black, red, and yellow.

These Vikings of the South Seas canoe across hundreds of miles of equatorial waters in spite of tricky winds and treacherous tide-rips. Although they have ter-

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developed best. Some of them at once turned into "wigglers"—the slender larvae that hang head-down at the surface of stagnant pools to breathe. This is the stage at which the mosquito's water babies can be drowned by a film of kerosene over the surface.

Soon the larvae developed into pupae, thick-headed transparent creatures tapering to tail flaps, with outlines similar to those of a shrimp. For a couple of days they curled and uncurled themselves in this very active but non-feeding phase.

Then came the climax which transformed a water creature into an insect with wings. Under the microscope the process looked like a collapsible airplane model, neatly folded, emerging from a fish. The skin of the pupa split, the hunched-up thorax of the mosquito appeared, then the head; then the rest of the body rose smoothly, without a quiver, in about five minutes. It hoisted its antennae, stretched its angular threadlike legs, moved its wings, and was ready to fly.

From egg to adult required three weeks of growth. During the summer the same development would have taken only about ten days.

Note: A few photographs and some brief text references about the mosquito, its history, relation to disease, and location in the world are contained in "Change Comes to Bible Lands," *National Geographic Magazine*, December, 1938; "Coconuts and Coral Islands," March, 1934; "An Army Engineer Explores Nicaragua," May, 1932; "Through Java in Pursuit of Color," and "Into Primeval Papua by Seaplane," September, 1929; "Trailing History Down the Big Muddy," July, 1928; "The Geography of China," June, 1927; "Exploring the Valley of the Amazon in a Hydroplane," April, 1926; "The Romance of Science in Polynesia," October, 1925; and "Map-Changing Medicine," September, 1922.

See also in the GEOGRAPHIC NEWS BULLETINS: "Man's Winning Fight Against Malaria," March 11, 1935.

Bulletin No. 2, January 9, 1939.

Photograph by Clifton Adams

SMALL SUBJECTS POSE UNDER A MICROSCOPE

Hashime Murayama, staff artist of the National Geographic Society, catches insects and other small creatures on paper as pictures. First he studies every stage of the metamorphosis (development from egg to final form) under the microscope. The small dissecting microscope (shown in use) magnifies 10 times; the larger one to the right can magnify 560 times. The "Do Not Disturb" sign applies to a jar of spiders; not to the artist. He is observing a trapdoor spider to add a final detail so small that he uses a magnifying glass on his brushwork.

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Telephoning in England Is Different

"THE wrong number" or the "out of service" signal should become rarer than ever in London, for the city now has a telephone exchange on wheels to go and get the right numbers in any emergency.

This traveling "Central" is an independent unit run by batteries, capable of handling 100 circuits. If fire or flood or other calamity should cut off the usual Hello-girls, the mechanical exchange can be wheeled into immediate action.

To make it self-contained, the unit has a gasoline engine to recharge the batteries, and the engine can be cooled by rain water caught on the roof.

Listen for "Burr-Burr" . . . Then Press Button A

The new exchange is part of the immense London telephone system, now serving more than a million phones. In all, Great Britain has about three million. By way of contrast the United States has more than nineteen million phones now in use, and New York City alone has a million and a half.

The London public telephone is a strange instrument to an American. The first time a visitor from the United States attempts to use a telephone in London, he is likely to be as confused by it as was his father or grandfather at home when those "new-fangled machines" first came into use sixty years ago.

Coin slots are larger on the London telephone to receive the large British pennies. A printed notice on the instrument explains that after you have inserted a coin and dialed, "a low-pitched burr-burr indicates that your number is being rung."

Another printed notice directs: "When your correspondent answers, and not before, press Button A and speak." You hunt around for Button A, resembling a push-button on a slot machine, press it, and thus make your reply heard. Forget to press the button, and your opening speech will be just so much wasted breath, for not a word of it will be audible to your listener.

English public telephones are public in every sense of the word. Many of them are in bright red booths set on street corners. Both sides and door of a booth are largely of glass, and any novice fumbling for Button A is at the mercy of the gaze of passersby.

While making a call, you are occasionally surprised to hear the unmistakably British voice of the operator asking, "Are you there?"

"Ahoy-Ahoy" Was Early American for "Hello"

One of the first Britishers to own a telephone was Queen Victoria. After she had listened with delight to experiments of singing over the instrument, she was presented with a "set" of ivory telephones by their Scotch-born American inventor, Alexander Graham Bell, who then was introducing his invention into Great Britain. Early telephones were installed in pairs, unconnected with any others; the people at each end of the line could talk only with each other.

Fifty-eight years ago, not long after Queen Victoria had acquired her telephone, London installed its first telephone exchange with only seven or eight subscribers. In the United States a commercial switchboard had already been in use for a year. It had been installed in New Haven, Connecticut, on January 28, 1878. Its first operators were boys. Instead of saying "Hello," they shouted "Ahoy-ahoy," a nautical phrase not out of place in seafaring New England.

The same mouthpiece then was used for transmitting and receiving. A notice

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rorized the East Indies with raids for slaves and food, they still grow seasick, fear to be wet with rain, are crippled in age with arthritis, or die young of tuberculosis. By smuggling opium or Chinese coolies, or pursuing an inter-island trade in dried fish and sharks' fins, they supplement their income from diving for pearl shells to be exported for button manufacture.

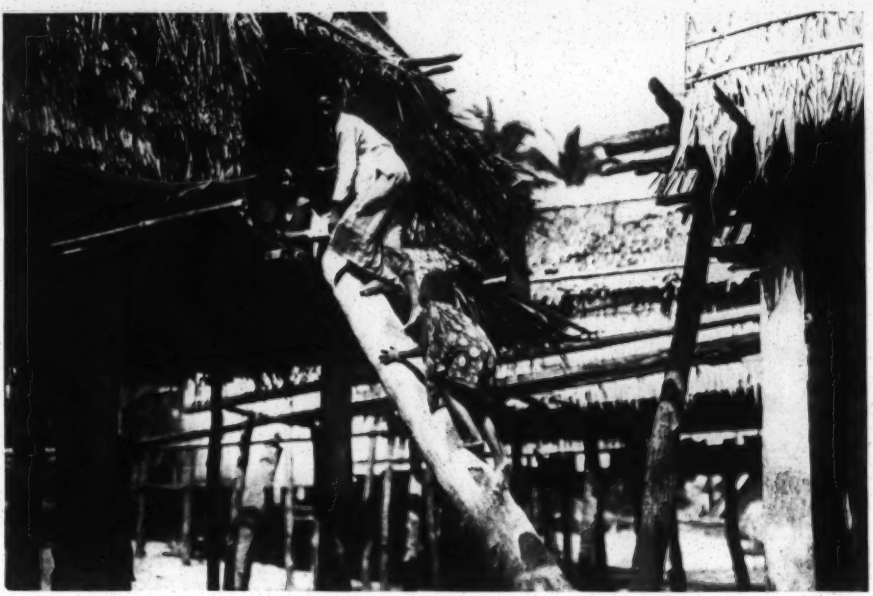
It was such sea gypsy folk mainly who manned the fierce Moro pirate fleets of a century or more ago. Spaniards, claiming the Archipelago after Magellan's discovery in 1521, called the people "Moro" because they were Mohammedan like the Moorish invaders of Spain; yet they are Malays to whom an Arab brought news of Allah and his Prophet in the 14th century. Fearlessly they defied Spanish rule for three hundred years and, except for a few coastal towns, kept the Sulu Islands independent, even exacting tribute from parts of Borneo. Treaties with the United States in 1899 and more completely in 1915 have tamed them.

Most of the land folk are farmers, working fertile fields of coffee, cotton, cassava, and corn with crude plows hitched to water-buffaloes. Terraces of paddy fields, in which they can grow a score of varieties of rice—including black, green, and red—give their hillsides a parklike landscape.

Metal work among the natives is being replaced by tools and knives fashioned in foreign factories. Fewer wide scarfs are made on local looms, and many of the women's sarongs, or wrap-around skirts, are imported from England or Japan by shrewd Chinese merchants.

Note: See also "As the Tuan Had Said," *National Geographic Magazine*, November, 1933; and "The Non-Christian People of the Philippine Islands," November, 1913.

Bulletin No. 3, January 9, 1939.



Photograph by K. Koyama

THE SULU TWO-STORY HOUSE HAS NO FIRST FLOOR

Throughout the Philippines the natives raise their standard of living by propping their homes above the damp ground that swarms with vermin and snakes. Trunks of palm trees supply stilts, and palm leaves are used for thatch on steep roofs and walls. Some families build in trees 60 feet from earth. Moros, the Mohammedans of the Sulu Archipelago, prefer to build on seashore that is covered with water at least at high tide. They enter their homes by ladder, but many of the high-and-dry houses of their landlubber neighbors have a notched tree trunk at an angle of 45 degrees to serve as man-power elevator.

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Revival of Inca Empire Proposed

THE ghost of a long-dead monarchy appeared recently before the Pan-American conference at Lima, Peru, in the form of a petition for the restoration of the once powerful Inca Empire. Submitter of the program is reported to be one Huaracha Duchicela, "Inca of America" and leader of the Inca Monarchist party in Ecuador. "Inca" Duchicela is now engaged in the more prosaic business of handling cameras and postage stamps.

With the exception of Brazil, which as recently as 1889 substituted a republic for an empire, monarchists have been out of fashion in South America for more than a hundred years.

Even before the advent of the various republican forms of government, no European royalty—again except in Brazil—had ever reigned on South American soil. Yet this continent had, between the 12th and 16th centuries, one of the world's richest dynasties, that of the Inca Empire-Builders of the Andes.

"Success Story" for Sovereigns

Starting from a small tribe of llama herdsmen in the uplands of Peru, the Incas by guile, persuasion, and conquest gradually built up a vast empire that extended from what is now northern Ecuador to southern Chile, over an area equal to more than the entire eastern seaboard of the United States.

They developed an art and architecture, and a system of government under which the conquered were coaxed to give service, loyalty, and even tribute "with a smile."

The "Children of the Sun" began their long success story with a spectacular act of salesmanship. According to legend still told by descendants of the Incas, this tribe first came down from the mountains to the rich valley of Cuzco. Dressing one of their handsomest boys in a gold-spangled robe, they stationed him at the opening of a cave overlooking the valley, and then called all inhabitants of the region to look on his magnificence under the sun's dazzling rays.

The valley folk were duly impressed with the show, the story goes, and made the "Son of the Sun," as the Incas called the boy Roca, their "divine" leader.

From that time on, until the empire crumbled before gold-hungry Spaniards in 1533, the Incas spread their power and influence through a huge region of tumbled mountains, coastal Sahara, and jungle wilderness.

A Genius for Organization

Like the Romans, the Incas linked the distant parts of their empire by a system of paved roads, carved when necessary into mountain steps. They built suspension bridges across rivers and between precipices. Trade routes were guarded by stout fortresses, such as the border citadel of Machu Picchu, uncovered in 1912 by a joint expedition of the National Geographic Society and Yale University. They imported fertilizer for farms, built irrigation canals, and mined gold. Sun-worshipers, they made sundials, which were placed in the temples and used to determine the seasons. They built towers, too, by whose shadows festivals were set; and had an intricate method of accounting by means of knotted strings.

The talents of the Incas, however, were most dramatically shown by their "colonial" policies. Through many minor officials the supreme authority of the ruling Inca reached down into every household in the land.

General loyalty was won from each group of subjects by appointing to impor-

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near the instrument read, "Don't talk with your ear, nor listen with your mouth." After the speaker learned to operate the machine, he had to shout to make himself heard above the shriekings and moanings of outside disturbances on the wire.

Today the telephone lives up more than ever before to its name, which means literally "far off sound." Cables in the English Channel and the North Sea connect the more than a million telephones in London, directly with those of France, Belgium, and The Netherlands, and indirectly with those of other countries of Europe.

When Londoners heard a voice in New York say "Hello London" on January 7, 1927, the first commercial service between the two cities was inaugurated. Now this service, by radiophone across the Atlantic, is constantly in use.

Note: See "The Miracle of Talking by Telephone," *National Geographic Magazine*, October, 1937; "As London Toils and Spins," January, 1937.

Bulletin No. 4, January 9, 1939.

BINDERS FOR GEOGRAPHIC NEWS BULLETINS

A special binder for GEOGRAPHIC NEWS BULLETINS which will hold thirty issues (a complete year's edition) is now available. This holder consists of a handsomely embossed brown cover and spring jaws which grip hard and hold fast one, two or any number of BULLETINS up to a full year's allotment. When a single BULLETIN is required elsewhere, release is immediate, replacing equally easy while other BULLETINS remain undisturbed in numerical order as they were. BULLETINS are not punched or marred in binding.

This binder can be obtained by writing direct to The Albrecht Company, 211 South Sharp Street, Baltimore, Md., the National Geographic Society is informed. It is mailed postpaid upon receipt of $1. Money will be refunded if the binder does not prove satisfactory. Your name will be placed on the front cover in 22-carat gold for 15c additional.

Photograph by B. Anthony Stewart

THE INSIDE STORY OF LONDON TELEPHONING TELLS OF DOMINION CONTACTS

The switchboards, even the dial on the right, are nearly identical with those in U. S. exchanges. But the names above panels in the Long Distance Exchange show how London keeps in touch with other parts of the Empire on which "the sun never sets": Montreal, Canada; Cape Town, Union of South Africa; Sydney, Australia; Nairobi, Kenya Colony, Africa. Among the cities given speedy and direct connections is New York.

tant posts, whenever possible, former local leaders. Bonds between conquered and conqueror were forged through the young by education at the Inca capital at Cuzco. Trade fairs and festivals provided "bread and circuses" for the people. The Incas even had an early form of "resettlement" whereby newly conquered peoples were moved bodily to safe, loyal districts, where conditions of life were as similar as possible to the old homeland.

On the other hand, in spite of many examples of their wisdom, the Inca rule was not always reasonable and gentle. Ruthless in war and in punishing crimes against their laws, the system demanded tribute from all.

The story is told that an Inca emperor once exacted a toll of lice from one community too poor to yield anything else.

Today, descendants of the Incas and their numerous subjects make up an estimated 65 per cent of the inhabitants of what was formerly Incaland. Monuments of the vanished empire persist in massive masonry, whose stones were fitted so carefully centuries ago by men with crude implements. Pre-Columbian Inca featherwork, gold ornaments and woolen tapestries are on exhibit in museums of Peru, Ecuador, Bolivia, and in the United States and in Europe.

Note: Additional information and photographs about the Incas will be found in "Incas: Empire Builders of the Andes," *National Geographic Magazine*, February, 1938; "A Forgotten Valley of Peru," January, 1934; "Air Adventures in Peru," January, 1933; "The Lure of Lima, City of the Kings," June, 1930; "Buenos Aires to Washington by Horse," February, 1929; "The Heart of Aymará Land," February, 1927; "Further Exploration in the Land of the Incas."

Bulletin No. 5, January 9, 1939.

Photograph by Elizabeth R. Hibbs

THE HUMBLE LLAMA HERDER HAS A PROUD BACKGROUND OF ARCHITECT ANCESTORS

His Inca forebears with primitive tools built massive stone walls so smoothly fitted together that no mortar was necessary to bind them through the centuries. Single building stones weigh twelve or fourteen tons. Yet their edges match as neatly as the pieces in a quilt; one large five-sided block in a wall at Machu Picchu has seven smaller stones dovetailed around it. The llama, chief Inca transport before Spaniards imported donkeys, is as much a part of the native background as the castles and forts of a vanished empire.

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